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blished by affinities of language. By an Indian newspaper of March 9th, I observe that, at a meeting of the Royal Asiatic Society of Bombay, on 14th February, 1867, Mr. Rivett Carnac brought to notice the results of the examination of barrows, supposed to be Scythian, at the village of Junapanee, near Nagpoor. Here pottery, spear and arrow heads, battle axes, and, perhaps the most curious of all, a horse's snaffle bit, and a small model in iron of a Scythian bow and arrow were found. Two pieces of curved iron, with loops at either end, were no doubt stirrup irons. Mr. Carnac states that similar barrows exist in other localities of Central India; and it is very satisfactory to know that the Antiquarian Society of the Central Provinces is taking great interest in the examination of these ancient remains.

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XIII.—ON THE HISTOLOGY OF THE TEST OF THE CLASS PALLIOBRANCHIATA. By PROFESSOR W. KING, QUEEN'S COLLEGE, GALWAY. [Abstract.]

[Read April 22, 1867.]

It is well known that a "canal system" characterizes many Pallio-branches—the valves being perforated obliquely, or perpendicularly, to their surfaces; and that, on dissolving the shell substance of the valves, each perforation is found to enclose a membranous or fleshy cylindrical body, called a "cæcal appendage."

In the present paper the valves are shown to be covered with a cellular ("not a structureless") epidermis. Hitherto the perforations have been represented as showing themselves on the surfaces of the valves through openings in this covering; but such cannot be the case, inasmuch as the epidermis is absolutely imperforate and entire, like that of ordinary Molluscs.

According to previous observers, the presumed openings in the epidermis are each "closed in" by a "membranous disc," or "discoïdoidal operculum:" it so happens, however, that what have been taken for bodies of the kind are the flattened extremities of the cæcal appendages (the former often broken off from the latter), lying against or adhering to the under side of the epidermis.

Under a hand magnifier the outer surface of the valves appear to be thickly studded with minute opaque spots. Examined with an ordinary microscope, each spot is resolved into a brush-like bundle, composed of short crowded lines, or rather tubules, radially arranged around a vacant centre. The tubules (which belong to, and penetrate, a thin calcareous layer, situated immediately beneath the epidermis) are confined to the apical portion of the perforations.

When a fragment of terebratula shell is dissolved, the flattened extremity of the cæcal appendages is found to be encircled with slender membranous filaments diverging outwardly. The filaments are supposed by most observers to be "cilia," which served the purpose of driving currents of water through the perforations or cæcal appendages.

Professor King contends that, what whatever office the filaments may subserve, the circumstances under which they occur are obviously incompatible with their supposed ciliary function; and in his opinion the evidence he has adduced shows that they are the ultimate subdivisions of caecal appendages.

The perforations themselves, or rather their trunks, are generally simple; but in *Terebratulina caput-serpentis*, hitherto stated to have them of the usual form, they are singularly branched, or antler-shaped.

Although something has long been known of the branching character which distinguishes the canal system of *Crania anomala*, additional information on this point is given in the paper. Each trunk is at first divided somewhat as in *Terebratulina caput-serpentis*; but the branches, instead of ending each in a brush-like bundle, are individually terminated with a tuft of branchlets, sub-radially disposed. The former, as commonly seen, no doubt differs considerably from the latter: this is not so, however, when the respective bundles of various species are examined with powers magnifying from 150 to 300 diameters:—for example, in *Terebratula vitrea* the radiating lines or tubules, besides seemingly branching, shoot right across the comparatively wide interspaces, thereby causing the bundles to resemble long-spined *acari*, and to assume a feature which shows that there is nothing real or absolute in the difference above alluded to.

As the branchlet-tufts of *Crania anomala* are obviously the ultimate subdivisions of the perforations, the same conclusion may be predicated of the brush-like bundles belonging to the so-called “ciliated discoidal opercula” of other Palliobranchs: in short, according to Professor King, both are strictly homologous structures.

The paper notices some other points, which, along with those just stated, show that, although much has been published on the history of the Palliobranchiata, the subject has been far from exhausted.

#### XIV.—ON ANIMAL HEAT. BY W. H. O'LEARY, Esq. [Abstract.]

[Read May 13, 1867.]

THERE are, broadly speaking, three great sources whence we derive materials which, by being oxidized, produce Animal Heat:—

First. Calorific foods, fats, &c., ingested by the intestinal canal;

Second. Disintegrated material derived from muscular and other tissues, as a result of activity;

Third. Reserved calorific materials stored up in the living system—namely adipose, &c.

The result of a number of experiments detailed in this paper (some of which I would wish to repeat in order to verify the results), tend to conclusively prove that the production of Animal Heat by oxidation of